HIMALAYAN ADAPTATION, WATER AND RESILIENCE RESEARCH ON GLACIER AND SNOWPACK DEPENDENT RIVER BASINS FOR IMPROVING LIVELIHOODS

The glacier- and snow-fed river basins of the Hindu Kush Himalayan region are highly vulnerable to climate change. Shifts in precipitation and runoff, and extreme events like floods and droughts, are already impacting the wellbeing of the region's over 1.3 billion people. The Himalayan Adaptation, Water and Resilience (HI-AWARE) Research on Glacier and Snowpack Dependent River Basins for Improving Livelihoods programme aims to enhance the climate resilience and adaptive capacities of the poor and vulnerable people living in the Indus, Ganges, and Brahmaputra basins. HI-AWARE will influence policy and practice in sectors such as agriculture, water, energy, and health by: a) generating scientific evidence; b) building the capacity of multiple stakeholders to conduct and use research on climate resilience; and c) testing promising adaptation measures for out-scaling and upscaling.

Glacier-fed river basins and climate change

The Hindu Kush Himalayan (HKH) region, dubbed the "Water Towers of Asia", provides water and other ecosystem services to more than 1.3 billion people. However, its glacier- and snow-fed river basins are highly vulnerable to climate change. Climate change-induced shifts in the timing and pattern of precipitation, especially monsoons, and of glacier and snow runoff in the region are already having an impact on water and energy availability across the region. As most of the HKH region is dependent on monsoon rain for agriculture, changes in the monsoon cycle have implications for food and nutritional security. The frequency and intensity of extreme events like floods and heat waves are also projected to increase due to climate change, impacting human health and safety. People have been coping with or adapting to change in their own ways for centuries; however, this is no longer enough. Planned adaptation approaches and practices, based on traditional/indigenous knowledge informed by modern science, are needed.

HI-AWARE's objectives

HI-AWARE aims to contribute to enhanced climate resilience and adaptive capacities of the poor and vulnerable women, men, and children living in the Indus, Ganges, and Brahmaputra basins by leveraging research and pilot results to influence policy and practice to improve their livelihoods.

To achieve this aim, HI-AWARE will:

- generate scientific knowledge on the biophysical, socio-economic, gender, and governance drivers of vulnerability to climate change;

Key questions

1. What are the local, seasonal and sectoral impacts of climate change?
2. How are people and human systems adapting to change?
3. What adaptation measures work where, when, for whom, and at what scale?

1.3 billion

people in the HKH region are vulnerable to climate change

- gather evidence on the potential of specific adaptation approaches and practices;
- develop stakeholder-driven and gender-inclusive adaptation pathways;
- promote the uptake of new insights through citizen-driven approaches; and
- strengthen the expertise of researchers, students, and science-policy-stakeholder networks on climate change adaptation and resilience.

Our approach

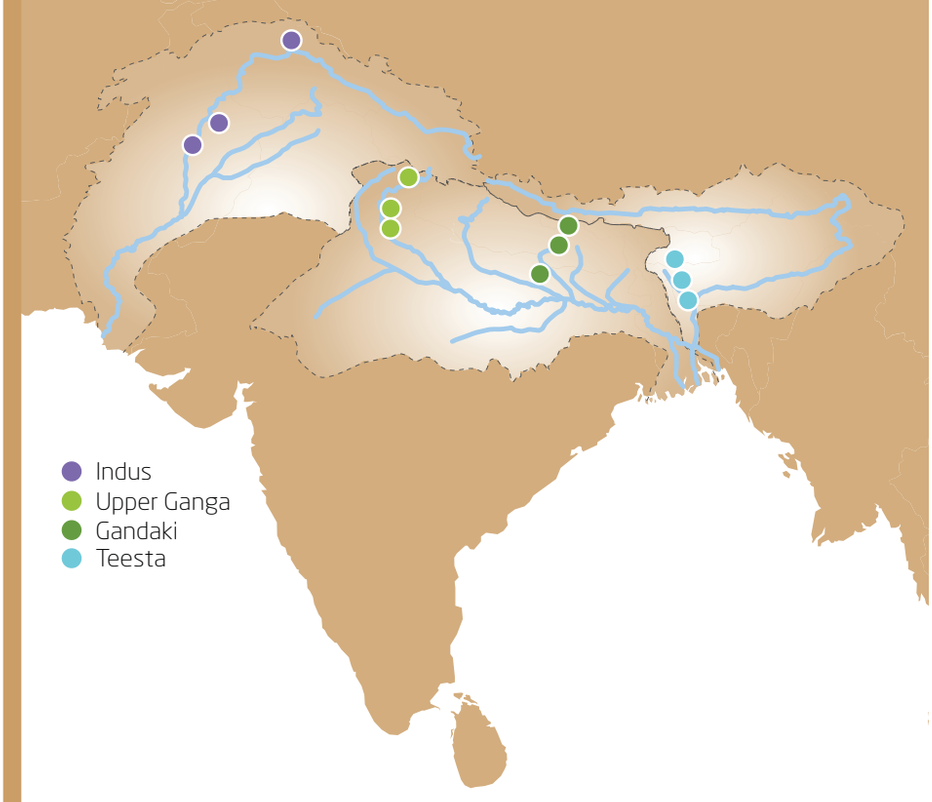
HI-AWARE will undertake participatory monitoring and assessment of climate change impacts and adaptation practices to identify:

- *critical moments* – times of the year when specific climate risks are highest and specific adaptation interventions are most effective;
- *adaptation turning points* – when current policies and management practices are no longer effective, calling for alternative strategies; and
- *adaptation pathways* – sequences of policy actions that respond to adaptation turning points by addressing both short-term responses to climate change and longer term planning.

HI-AWARE aims to engage with key stakeholders at all levels, ensuring an appropriate mix of incentives and tools is made available to encourage the use of HI-AWARE-generated research and pilot results.

Where we work

HI-AWARE focuses its activities on twelve study areas, three each in the Indus, Upper Ganga, Gandaki and Teesta basins.



Consortium members

International Centre for Integrated Mountain Development (Nepal)
Bangladesh Centre for Advanced Studies (Bangladesh)
The Energy and Resources Institute (India)
Climate Change, Alternative Energy, and the Water Resources Institute of the Pakistan Agricultural Research Council (Pakistan)
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